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SCIENCE

FRIDAY, APRIL 14, 1911

THE ORIGIN OF THE THERMAL WATERS IN
THE YELLOWSTONE NATIONAL PARK ¹

CONTENTS

<i>The Origin of the Thermal Waters in the Yellowstone National Park:</i> DR. ARNOLD HAGUE	553
<i>Historiometry as an Exact Science:</i> DR. FRED- ERICK ADAMS WOODS	568
<i>Scientific Notes and News</i>	574
<i>University and Educational News</i>	577
<i>Discussion and Correspondence:—</i>	
<i>The Method of Science:</i> PROFESSOR S. M. PATTEN. <i>Maistor Larvæ:</i> DR. E. P. FELT	578
<i>Scientific Books:—</i>	
<i>Lacroix's Minéralogie de la France:</i> DR. GEORGE F. KUNZ	583
<i>Botanical Notes:—</i>	
<i>Two Botanical Journals; A Periodical for Moss Students; Hough's Leaf Key to the Trees; Short Notes:</i> PROFESSOR CHARLES E. BESSEY	586
<i>Special Articles:—</i>	
<i>The Poisonous Effects of Alcoholic Bever- ages not Proportional to their Alcoholic Contents:</i> PROFESSOR D. D. WHITNEY	587
<i>Biological Society of the Pacific Coast</i>	590
<i>Societies and Academies:—</i>	
<i>The Helminthological Society of Washing- ton:</i> MAURICE C. HALL. <i>The Anthropolog- ical Society of Washington:</i> I. M. CASANO- WICZ	590

INTRODUCTION

FROM the earliest days of systematic geological research thermal springs have been a frequent subject of investigations by students of natural phenomena. From time to time numerous contributions to scientific literature bearing upon the nature of hot springs, partly descriptive and in part theoretical, have been presented to learned societies. Nearly all regions where such waters issue from the ground on an imposing scale appear to have been at one time or another scenes of eruptive energy. In so many instances has this been shown to be the case that thermal activity and volcanic manifestation have come to be regarded as associated phenomena. It by no means follows, however, that the original source of all these waters was, geologically speaking, deep-seated, and by a large school of geologists it has never been so regarded. In recent years the results of several suggestive researches have been published, in which the position is taken that superheated waters from igneous rocks are primitive in their origin; that is to say, they are derived from great depths in the earth's crust and are brought to the surface for the first time by volcanic forces.

The Yellowstone National Park affords one of the most remarkable, and probably one of the most instructive areas of thermal springs and geysers to be found in the world. The varied phenomena of boiling springs and aqueous vapors there stand unsurpassed. Several years ago, after a

MSS. intended for publication and books, etc., intended for review should be sent to the Editor of SCIENCE, Garrison-on-Hudson, N. Y.

¹Annual address of the president, before the Geological Society of America, December 27, 1910.